Deposition Designations for:
ARTHUR FRANK
June 5, 2009

Deposition Designation Key

Arrowood = Arrowood Indem. Co.
f/k/a Royal Indem. Co. (Light Green)

BNSF = BNSF Railway Co. (Pink)

Certain Plan Objectors "CPO" = Government Employees Insurance Co.; Republic Insurance Co. n/k/a Starr Indemnity and Liability Co.; OneBeacon America Insurance Co.; Seaton Insurance Co.; Fireman's Fund Insurance Co.; Allianz S.p.A. f/k/a Riunione Adriatica Di Sicurta; and Allianz SE f/k/a Allianz Aktiengesellschaft; Maryland Casualty Co.; Zurich Insurance Co.; and Zurich International (Bermuda) Ltd.; Continental Casualty Co. and Continental Insurance Co. and related subsidiaries and affiliates; Federal Insurance Co.; and AXA Belgium as successor to Royal Belge SA (Orange)

CNA = Continental Cas. Co & Continental Ins. Co. (Red)

FFIC = Fireman Funds Ins. Co. (Green)
FFIC SC = Fireman Funds Ins. Co. "Surety Claims" (Green)

GR = Government Employees Ins. Co.; Republic Ins. Co. n/k/a Starr Indemnity and Liability Co.

Libby = Libby Claimants (Black)

OBS = OneBeacon America Ins. Co. and Seaton Ins. Co. (Brown)

PP = Plan Proponents (Blue)

Montana = State of Montana (Magenta)

Travelers = Travelers Cas. and Surety Cos. (Purple)

UCC & BLG = Unsecured Creditors' Committee & Bank Lenders Group (Lavender)

AFNE = Assume Fact Not in Evidence
AO = Attorney Objection
BE = Best Evidence
Cum. = Cumulative
Ctr = Counter Designation
Ctr-Ctr = Counter-Counter
ET = Expert Testimony
F = Foundation
408 = Violation of FRE 408
H = Hearsay
IH - Incomplete Hypothetical
L = Leading
LA = Legal Argument
LC = Legal Conclusion
LPK - Lacks Personal Knowledge
LO = Seeking Legal Opinion
NT = Not Testimony
Obj: = Objection
R = Relevance
S = Speculative
UP = Unfairly Prejudicial under Rule 403
V = Vague

IN THE UNITED STATES BANKRUPTCY COURT
FOR THE DISTRICT OF DELAWARE

CHAPTER 11

IN RE:
W.R. GRACE & CO., et al.
Debtors.

Case No. 01-1139 (JFK)
Jointly Administered

DEPOSITION OF
Arthur L. Frank, M.D., Ph.D.
June 5, 2009
Philadelphia, Pennsylvania
Lead: Nathan Finch, Esquire
Firm: Caplin & Drysdale

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where there is such a claim made. Most of the discussion has to do with mesothelioma, but there are some people who also feel there is a differential with lung cancer that's been less well studied, I think.

Q And what about as a differential between amphibole and chrysotile for purposes of causing nonmalignant disease? Is there any literature on either side of that question that would allow you to make a categorical statement that amphibole asbestos exposures are more likely to cause asbestos disease than chrysotile asbestos exposures?

A. No.

Q You came into the deposition, and I took it because it was sitting there in front of you, I think you had an extra copy, you have the most recent copy of your CV?

A. Yes.

Q Can we mark that as Frank Deposition Exhibit Number Eight?

A. Certainly.

- - -

(Exhibit Frank-8 was marked for

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identification and is attached hereto.)

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BY MR. FINCH:

Q Are you generally familiar with the EPA 1986 Airborne Asbestos Health Assessment Update?

A. Not especially. I probably saw it at the time. I haven't seen it in years and have no specific recollection of it.

Q One of the principal authors is a gentleman by the name of Dr. William Nicholson. Do you know --

A. I know Bill very well.

Q Do you have a view as to his qualifications and expertise on asbestos-related medical issues?

A. He was trained as a biophysicist and spent a lot of his time working with Dr. Selikoff learning about asbestos, doing asbestos-related research.

Q Do you have an understanding that it is still the official position of the United States Government that all different types of asbestos fiber, and by "all types", I mean amosite versus chrysotile, are equally --

A. Amphiboles.

Q Excuse me. Amphiboles versus chrysotile are

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equally potent for causing mesothelioma?

A. Yes. They have not adopted any other view, even though that has been put forward.

Q And some of the places that it has been put forward, are you familiar with the EPA working group study in 2002 colloquially known as Berman and Crump, where the authors of that surveyed the epidemiological literature and attempted to quantify how much more toxic the amphiboles were than chrysotile fibers for the production of mesothelioma?

A. I am.

Q And what did the EPA do, if anything, with the Berman and Crump work?

A. Had it reviewed by a scientific body who found it weak and unsubstantiated.

Q And just to break that down a little bit more, the Berman and Crump 2003 paper working group study was updated substantially in 2007 and 2008 and became something known as Bratt and Crump; correct?

A. I'm specifically aware of that.

Q But it was their work which attempted to quantify the difference between the amphiboles and

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causing mesothelioma and chrysotile and causing mesothelioma led to a hearing before a science advisory board at the EPA last summer, 2008; correct?

A. Yes.

Q And did you participate in any way in, and by "participate any way", did you review the EPA science advisory board's conclusions about the adequacy of the data to support the Bratt and Crump/Berman and Crump work?

A. I believe I read something about that. It may have been a summary.

Q Let's mark this as Frank Deposition Nine.

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(Exhibit Frank-9 was marked for identification and is attached hereto.)

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BY MR. FINCH:

Q Frank-9, can you identify Frank-9, Dr. Frank?

A. It is a November 14, 2008 letter to the administrator of the EPA, Mr. Johnson, with an attachment, which is a report that the committee put together.

Q And this is the report that the science advisory board put together when they -- let's back up. The science advisory board was a collection of experts in lots of different disciplines with the question of being asked of them whether or not the Berman and Crump/Bratt and Crump work was sufficiently valid to make quantitative assessments about the differences between asbestos fiber type and asbestos fiber length in causing mesothelioma and lung cancer; is that correct?

A. That was my understanding.

Q And you've seen this document, Frank-9, or a summary of it before?

A. I think I've seen a summary. I don't think I've seen the whole document as it is presented to me here.

Q And the committee, the science advisory board committee, generally agreed that the scientific basis as laid out in the technical document referring to Bratt and Crump, in support of the proposed method is weak and inadequate. Did you see that, it's on page two of this document?

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A. Yes.

Q And so is it your view that it is scientifically not possible to quantify how much more toxic amphiboles can be than chrysotile, at least at this time, with the data we have?

A. That reflects my own view that I think is unsettled. I think it is a doable piece of work, but it is not doable given the data that we have so far.

Q Given the data, and by "data", we mean the epidemiological and exposure data about all different types of exposure to asbestos that have been assembled in the scientific community to date, you would say it's impossible to say that amphiboles are X-times more likely to cause mesothelioma than chrysotile?

A. Well, it's obviously not impossible since people have done that, so it is possible to say that. I don't think the basis for saying it is very good.

Q You don't think there's a good scientific basis for saying that?

A. Correct.

Q If Dr. Whitehouse were to testify that in

his opinion amphibole exposures are a hundred times more likely to result in mesothelioma than chrysotile only exposures, you would say there is not a good scientific basis to say that?

A. Well, he can look at the science the way he wants and there is data that would be supportive of that view. Maybe he decides that he accepts that data. I've looked at that issue and am not persuaded. But different scientists will use different ways of looking at the same information.

Q Okay. So, you would disagree with Dr. Whitehouse, if Dr. Whitehouse's opinion is that amphibole fiber are a hundred times more likely, a hundred times more potent for chrysotile for causing mesothelioma, you would disagree --

A. I personally would disagree with that, but other scientists would certainly agree with him. And some would say that crocidolite is 500 times more potent. That's what Berman and Crump says or Hodgson and Darden.

Q But just because medical experts disagree about something doesn't mean that one of them is unreasonable and the other one is reasonable?

A. No, it does not necessarily mean that.

Q Do you know Dr. Laura Welch?

A. I do.

Q You have coauthored papers with her; is that correct?

A. I have.

Q One of the papers that you coauthored with her was a paper published in 2007, thereabouts, about the ability of chrysotile to cause mesothelioma?

A. Yes, sir. And more recently the response to a letter to the editor of that journal, and I know Laura from other settings. When she did sheet metal work many years ago I was involved with that and we both serve on a research group that looks at DOE workers.

Q Have you come to form a view about her opinions about medical issues, asbestos medical issues?

A. I have.

Q Do you believe her opinions are outside of the medical main stream?

A. There are some of her reviews that I agree with, enough to sign onto an article that she was the chief author. On the other hand, there are

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other views that she holds that I disagree with, and I've had those discussions with her from time to time.

Q Do you view her positions on asbestos-related nonmalignant disease issues as expressed in the reports she has done in the Grace case as completely scientifically unsupportive?

A. That's a very general question. I think there would be some aspects that I would agree with and some that I disagree. For example, probably the major disagreement as to do with what you call pleural disease, and we actually had this discussion some months back in Washington in another setting in another context. She does not like the term "pleural asbestosis", where others of us feel that that's a perfectly appropriate view. But I think that's more a semantic issue than it is really a major scientific issue.

Q You certainly wouldn't characterize Dr. Welch's view on asbestos-related medical issues as extremely pro-defendant or not in -- I'll stop there. Extremely pro-asbestos defendant?

MR. HEBERLING: Objection; overbroad, compound.

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THE WITNESS: Well, first of all, I'm aware that Dr. Welch has been involved with litigation. I do not know and have never seen a list of who she has done work for. Most of my dealings have been such that I would say in many aspects we would agree. I would say that with regard to this matter that we're here about today, I take and have some serious disagreements with her construct about some of the materials that are apparently in question.

BY MR. FINCH:

Q You certainly wouldn't suggest that the views that she has expressed on, for example, whether or not you need blunting of the costophrenic angle to call pleural disease a diffuse pleural thickening that that view is a view that is completely unsupported by any medical literature?

A. There's medical literature in support of it. There's medical literature that deals with it otherwise. And I take that to be as much as anything else, a semantic issue, not an issue of biology. I mean, what you call something, people call things a lot of different things. There's a

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lot of names for a lot of medical conditions. It doesn't mean it is a serious disagreement. It's a different view or different construct. It's like how you classify things.

Q Are you familiar with something called the CARD Clinic, the Center for Asbestos-Related Disease?

A. Yes, I am. I have been there on a number of occasions.

Q Would you generally believe that statements they make on their website would be truthful and accurate?

A. I've never looked at their website. I would like to think that they are, but I have no basis to comment one way or the other.

Q The CARD Clinic website says, "Zonolite and Monokote are two trade names under which Libby vermiculite products were marketed.

There are two overwhelming examples of the extent to which exposures can spread through commercial products. Vermiculate contaminated with Libby amphibole asbestos was used to create Zonolite attic insulation it is estimated to be in thirty million homes.

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The second is Monokote, which is a huge fireproofing material. It was used to coat all the steel beams that were used in the construction of the World Trade Center Towers in New York City. You don't have --"

A. I would agree with everything but that last --

MR. HEBERLING: Just a minute, Nat. I'll object to the Witness being questioned on a document he has not seen and, secondly, it's highly compound. You read quite a bit of it.

BY MR. FINCH:

Q Do you have an understanding that Libby amphiboles went into Grace's Monokote product?

A. Yes.

Q So, anyone who worked around or worked with Monokote products could be exposed to the Libby amphiboles?

A. Yes.

Q And anyone who worked around or worked with Grace's Monokote products that contain Libby vermiculite, to the extent they contracted an asbestos-related disease, I take it that your view would be that the exposure to the Libby asbestos

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in the Monokote could be a substantial contributing factor to causing their disease?

A. Along with all their other exposures to asbestos, yes.

Q It's a cumulative exposure that adds to the dose that causes disease?

A. Yes.

Q So you couldn't segregate out one exposure as not being responsible and all the rest as being responsible?

A. Correct.

Q So, would you agree with me, to the extent that there are characteristics of asbestos disease caused by exposure to Libby asbestos, that may be different from what we have seen in the medical literature, it is the exposure to the Libby asbestos that may cause those differences and not the geographic location which the exposure occurred that matters?

A. If I understand the question, you're asking me if I believe that Libby asbestos, as earlier defined, regardless of where the exposure takes place, may, in fact, give rise to some different experiences compared to other types of exposure to

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other asbestos materials, I would answer yes.

Q So, there's not like some kind of magical shield around Lincoln County, Montana that if people breathed Libby asbestos in Lincoln County, Montana it would cause one set of asbestos diseases, but if they breathe the same Libby asbestos in an expansion plant in Michigan or as a result of working on a construction site and working with Monokote products, it would cause different asbestos diseases?

A. The diseases are the same. There's some significant differences. People who might work with construction materials would be working with a variety of materials themselves or be around others working with other materials and would have a wide range of exposures to asbestos.

If one is talking about occupational exposures, we're generally talking about normal workday kind of exposure. But living in Libby is essentially a twenty-four hour, seven day a week exposure, which may be further complicated by working directly with the materials or in some other way, spending part of your time in an occupational setting with exposure. But the

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diseases aren't different, but the nature of the exposure is certainly different.

Q Well, the diseases that people in Libby suffer are no different than the diseases people outside of Libby suffer; is that correct?

A. It's the same set of asbestos-related diseases.

Q And the type of asbestos to the extent that it is Libby amphiboles and people are exposed to the vermiculite in Libby as compared to Libby amphiboles that end up in Grace's commercial construction products, the type of asbestos the people are exposed to is the same?

A. The same asbestos.

Q So, the only thing that would be different between Libby claimants and people who are suing Grace because they were exposed to Monokote may be the amount of asbestos they were exposed to?

A. Or the fact that they have other exposures or that the intensity of the exposure is less and they have a different response. But the basic disease would be essentially the same.

Q Okay.

A. Or the diseases.

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Q The diseases would be the same between Libby claimants and other Grace claimants; correct?

A. I mean, we're talking about whatever asbestos-related diseases you can get. The nonmalignant diseases or the various malignancies. So, the diseases are the same.

Q And the type of asbestos that Libby claimants were exposed to would be the same as the type of asbestos that other Grace exposure, at least to the extent you are talking about the Libby amphiboles and Grace's construction products?

A. That's a self-answering question. That's a circular question. To the extent you were exposed to something, you are exposed to it. Libby people much less likely would have exposures to other asbestos materials, whereas others would have had --

Q Exposures to other products?

A. -- a wider variety of products and a variety of other fibers as well.

Q But you couldn't say that people who lived in Lincoln County, Montana are the only people exposed to Libby amphiboles?

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A. Certainly not.
Q So, the thing that might make them different would be the cumulative dose of Libby amphiboles they are exposed to as compared to somebody who lived in California, for example?
A. That would be one thing that I would expect would be different.
Q But would you agree with that the a cumulative dose of exposure to Libby amphibole asbestos would depend on the facts and circumstances of each individual person's situation?
A. Yes.
Q So, for somebody who is a hod carrier who works very closely with someone spraying Monokote, which contains Libby amphibole, and does that for forty years, that person may have a higher a cumulative dose of exposure to Libby asbestos than someone who has an environmental exposure and lived in Lincoln County for the past twenty years?
A. You would have to have an assessment of each case, but one could conceive of such a circumstance.
Q And so, the thing that -- and you haven't

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done that assessment here, you haven't compared the exposures of the people that live in Libby to the Libby amphibole asbestos as compared to a quantitative basis to the exposures of any of the other hundred thousand other people that are exposed to Grace's Libby asbestos-containing commercial products?
A. I have not done that in this case, nor have I done that in any case I've been involved with.
Q And it's probably not even possible to do that; would you agree?
A. Not accurately.
Q Let's mark this as the next exhibit.

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(Exhibit Frank-10 was marked for identification and is attached hereto.)

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BY MR. FINCH:
Q Dr. Frank, do you have Frank-10 in front of you?
A. I do.
Q Have you ever seen this document before?
A. I believe not.
Q Is this something that Dr. Welch cited in

one of her reports. This is an ATSDR analysis of people who lived around expansion plants around the country that would have received unprocessed vermiculite concentrate from Libby. You haven't done any analysis to analyze this ATSDR study, I take it, if you've never seen it before?
A. Correct.
Q Let me see if I understand correctly what you have personally done with respect to the Libby patient cohort. And why don't we get some definitions out of the way.
A. Yes, let's get some definitions. What do you mean by "Libby patient cohort"?
Q Would you agree with me that there are a group of people who lived in Lincoln County, Montana, or worked in Lincoln County, Montana who may or likely probably were exposed to Libby asbestos?
A. Yes.
Q And I have seen in Dr. Whitehouse's report references to some of the papers Libby claimants filed in their brief that the population of people in Lincoln County is around 9,500 people. Is that your understanding?

A. That's roughly the figure I have. 9,300 I think is what I recall.
Q So, if we were to call that the Libby asbestos exposed cohort --
A. Well, except people moved in and out. But basically there are people who lived there and have lived there on a regular basis for a long period of time that would be some subset of that number, but somewhere in that neighborhood.
Q Well, you could be a subset or it could be bigger; I mean, the 9,500 is how many people lived there, but it could be people who lived there and either they died or they moved away, so it could be bigger?
A. Right.
Q So, a rough order of magnitude, there's 9,500 people that were or could have been exposed to Libby asbestos?
A. At least that number, yes.
Q At least that number. So why don't we call that the Libby asbestos exposed cohort?
A. You can call it anything you want. It's not the term I would choose to use for that, but, okay.

A. A large overlap, but not a complete overlap.
Q Of the 1,800 people that are patients of the CARD Clinic, how many of them have you generally examined?
A. Personally examined by doing a hands-on exam?
Q Yes.
A. I've talked to one individual personally.
Q And how many people's x-rays have you reviewed?
A. Probably between hundred and 125, something like that.
Q And how many people's pulmonary function tests have you reviewed of that 1,800 people?
A. Some subset of that. A relatively small percentage.
Q Some subset of the 1,800 or some subset of --
A. No, of the 125 or so.
Q So, of the 1,800 of the CARD Clinic patient cohort, you've looked at x-rays or CT scans of no more than 150 of them?
A. That would probably be a fair statement.
Q And you've looked at pulmonary function

tests of no more than twenty-five?
A. Something like that, twenty-five, thirty, forty. I don't know.
Q And approximately how much time have you spent in the past year either looking at x-rays or writing a report or doing anything connected with the testimony you're expected to give in the Grace case?
A. In the last year?
Q Let's break it down. How about in the past month?
A. The past month it would be several hours reading some of these materials. But I'm just trying to think, in the last year it would probably be around twenty to thirty hours. Actually, maybe a bit more.
Q Fifty hours tops?
A. Not more than that.

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(Exhibit Frank-11 was marked for identification and is attached hereto.)

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BY MR. FINCH:
Q Dr. Frank, have you ever reviewed the W.R.

Grace bankruptcy trust distribution procedures for the settlement of asbestos personal injury claims?
A. No, sir. I mean, as I look at this, I've seen pieces of it. I have not seen the whole document.
Q You've seen pieces of it and you are aware that Dr. Whitehouse has opinions about certain aspects of the Grace trust distribution procedures --
A. As do I.
Q As do you -- medical and exposure criteria; correct?
A. Right.
Q And for purposes of -- we keep calling these colloquially TDP. Have you ever been asked to design medical exposure criteria for an asbestos bankruptcy trust to evaluate and, if the trust determines, appropriate to offer a settlement to resolve personal injury claims?
A. No.
Q Have you ever been asked to design claims evaluations and settlement procedures for any kind of asbestos-related disease payment vehicle beyond a trust?

A. No.
Q So, you haven't been asked to create those criteria for any kind of company that has asbestos liabilities?
A. No.
Q Or a workers' compensation board?
A. No.
Q Or a Federally administered asbestos disease evaluation and payment fund?
A. No.
Q Prior to this case -- I think I might have asked you this, but prior to this case have you ever reviewed medical and exposure criteria for a bankruptcy trust?
A. Other than this one, no. What I did review was the criteria under the asbestos bill that has been pending in Congress.
Q The so-called Fair Act that was --
A. The very unfair Fair Act, yes.
Q I would agree with that. But the so-called Fair Act that was proposed in various points in time during 2002 and 2006 that ultimately was not enacted?
A. Correct.

asbestos exposure?

A. I would say a minimum of six months, which is what it says.

Q Right. A minimum of six months is too restrictive or it's too difficult to meet; correct?

A. Correct.

Q And that's true for Libby claimants as well as people outside of Libby?

A. Anything we're going to talk about with regard to criteria probably are not going to be different for who it is. I mean, if you're talking about the science, it's the same science.

Q So, now we are looking at nonmalignant disease criteria, so I didn't ask you whether or not you have an opinion about whether the duration of exposure criteria for the nonmalignant disease is appropriate or not?

A. You did not.

Q What is your opinion about whether the duration of exposure criteria for the nonmalignant disease is medically reasonable or not for purposes of the Asbestos Pleural Disease Level II?

A. I think the requirement that there be five

years of occupational exposure is unreasonable. I do not think it is unreasonable to say that there is some threshold and that some judgement should be made about adequacy of exposure. The problem with the threshold issue is there is no number I can give you, and if you look at the literature the numbers vary by orders of magnitude as to what that number is. But it is not unreasonable to have some minimal time of exposure to develop --

Q An asbestos-related nonmalignant disease?

A. -- nonmalignant disease. Now, the five year requirement for occupational exposure is unreasonable.

Q Okay.

A. And if you go to the scientific literature, Selikoff, for example, has papers on short-term exposure and the subsequent development of disease, and even six months of exposure in an occupational setting can give you disease.

If we had some good number that we can go by we could use that, but there is no such good number. So, again, some judgement is appropriate, but I would disagree with the five years of occupational exposure.

Q If the five years of occupational exposure doesn't apply to the Libby claimants, would you agree with me that six months of exposure to the Libby asbestos is a reasonable judgement as to a threshold amount, if you will, since you could attribute a nonmalignant disease to exposure to asbestos?

A. It is a number for which there would be no scientific basis. It is probably not unreasonable.

Q So, to the extent Dr. Welsh and others hold the view that for the nonmalignant disease categories, and that would be category Level IV, severe asbestosis or severe pleural disease, or asbestosis pleural disease Level III and then the asbestos pleural disease Level II, a six month exposure to asbestos requirement for those diseases is at least not unreasonable?

A. I would put it to this way, the idea of some threshold is not unreasonable. So, for example, someone who spends a day in Libby and has subsequently been shown to develop nonmalignant disease, I would say that that would not be a reasonable relationship unless there were other

exposures to asbestos and in other settings and then you would have on say that one day is contributed to whatever. What might be different, and, again, there is no science that will support this in a scientifically supportable way, is that we don't really know given the Libby asbestos material, which is, in fact, a one fiber, one component of which is well-known, which is tremolite, but the other fibers the whip winchite and richterite, there is no scientific knowledge about those and that what I would say, and this is -- you know, again, there's different ways to handle this. One might say if someone had even four months exposure, let's say they lived in Libby for four months, subsequently were shown to have pleural disease, then I would have a higher order review to document if they did or did not have in any documentable exposure to asbestos in any other setting; did they work with asbestos, did they live near a shipyard, did they live near another asbestos producing facility, et cetera, et cetera. And that if one could document that the only known exposure was being in Libby, because we don't have good science, it might be four months

might be enough anyway, but you could reasonably set some minimal number to go by, and six months, for example, would not be unreasonable, and that's just a judgement, there's no science that says that, but that's not an unreasonable judgement, but allowing for the fact that there may be individual cases, those might go to individual review that if somebody had nonmalignant disease with no other exposure except something less than six months in Libby, could it be attributed to Libby.

Q So, if you assume that the vast majority of people in the Libby claimant population, and I don't mean people who have sued or otherwise would sue W.R. Grace and they live in or around Libby, Montana, have at least six months exposure to asbestos, if the six month exposure criteria is reasonable as to them?

A. I would think that reasonable.

Q And as to other Grace claimants with a six month exposure criteria to attribute a nonmalignant asbestos disease to Grace would be a reasonable thing?

A. If it's reasonable for one, it should be

reasonable for somebody else, too.

Q So, that would cover the exposure criteria for all the nonmalignant diseases; because would you agree with me that the exposure criteria for all the nonmalignant diseases is the same?

A. Well, they all talk about six months Grace exposure. They don't all talk about the five years of occupational exposure.

Q Well, they all have the six month Grace exposure?

A. Right.

Q And --

A. But they don't all have the five year.

Q Right. Category two and one don't have the five years; correct?

A. No. Category four and three don't have the five years. Only category two has the five years.

Q For the Asbestosis Pleural Disease Level III, there's also a lung function criteria; correct?

A. Correct.

Q What, if any, criticism do you have of the lung function criteria for the Asbestosis Pleural Disease Level III?

A. I think the total lung capacity less than eighty percent is reasonable, an FVC less than eighty and the requirement that the ratio being greater than or equal to sixty-five is probably not supportable. There's no scientific basis to say that that's a requirement that one should have.

Q What is DLCO, D-L-C-O?

A. Diffusion capacity.

Q How, if at all, does being a smoker or former smoker impact DLCO?

A. It depends. It may impact it not at all. It may impact it if you have severe emphysema. That would be the only thing that I could relate. The DLCO isn't even listed here. You know, that's one of the things -- you know, it's funny, the tests that are being used are all ones that are, to a certain extent, and people have argued, they are manipulable by the individual. You could work harder or not harder. You could have -- you can make the numbers change. Something like the DLCO, you have no ability to change that, and yet that's not one of the criteria.

Q One of your criticisms in your report

relates to the fact that DLCO, by itself, is not something that could be used to qualify for the TDP criteria, the requirement impairment?

A. Can you show that to me? Or what page are you talking about where that is what it says?

Q Actually, I'll withdraw the question. Frank-4 is your rebuttal to Dr. Welch's report?

A. Yes.

Q Do you see that?

A. I do.

Q On page two of this you write that you're citing to the Whitehouse 2004 paper. In his paper, Whitehouse describes that in his opinion the majority of the 1,500 people who have radiologic changes of asbestos exposure are at an increased risk for a progressive loss of lung function from pleural changes alone or from potential future development of interstitial fibrosis. Do agree with that?

A. Yes, I do.

Q Can you quantify that increased risk?

A. No. You know, in the future we can go back and look and see what the rate was, but there's no way to predict what that will be, and it's going

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A. Thousands.
Q That's an overwhelming number of depositions; right?
A. People can disagree on that.
Q Are you going to quibble with me about that or would you just -- that's an easy one. Overwhelming number of depositions.
A. Compared to what most physicians do, that's an overwhelming number.
Q It probably sets a record, in fact. Is there any other expert that you know who has testified in depositions as much as you have?
A. I don't keep track of how many times people --
Q Are you aware of one?
A. I've never looked into the issue.
Q I didn't ask you that. I asked, are you aware of one?
A. No, I'm not.
Q Thank you. So, if you go back now to the disagreements that you have with Dr. Welch in this case, you would recognize that she is an expert in your field; correct?
A. She is someone who is experienced in this

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field. Expert, again, is a designation I take by the court.
Q I've heard that. I don't buy that.
A. What do you mean? You can buy it or not. She has expertise beyond what most physicians do about this topic.
Q And on that basis, would you consider her, in your own view, Dr. Frank, to be an expert? I'm just asking for your scientific view of her as an expert?
A. I don't use the term "expert". I really have segregated that in my mind to what court's do. Does she have a special experience and expertise and do I value what she says? Certainly more than I would for other physicians and in most --
Q Dr. Frank -- I'm sorry.
A. And in most ways I have agreed with her enough of an agreement to sign onto a paper that she was the senior author of. That doesn't mean we agree about everything.
Q The issue is not whether -- I know that, that's where I'm going. Obviously you don't agree with Dr. Welch about everything; right?

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A. Correct.
Q And no one would expect that you would; right?
A. I don't know. Some people might.
Q All right. Mr. Heberling, he agrees with every word that you speak; right?
MR. HEBERLING: Objection.
THE WITNESS: I doubt that.
MR. HEBERLING: Argumentative.
MR. BERNICK: Well, of course it's argumentative. Cross-examinations are always argumentative, Mr. Heberling.
MR. HEBERLING: Depositions need not be excessively argumentative.
MR. BERNICK: Well, I don't think I was being excessively argumentative.
BY MR. BERNICK:
Q Dr. Frank, do you consider yourself to be an expert?
A. No, I do not. I'm someone who has a certain expertise and has spent forty years of his professional career studying the subject of asbestos. I do not call myself an expert.
Q You've never called yourself an expert in

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any context outside of court?
A. No.
Q Is my statement accurate?
A. I have never called myself an expert in anything.
Q Outside of court?
A. Outside of court, I don't believe so. Not that I can recall.
Q You are certainly aware that a lot people in lay terms talk about somebody being an expert; correct?
A. Absolutely.
Q You also are aware that there are many, many, many, many scientists who from their own point of view as scientists talk about themselves as being experts; correct?
A. I'm not one of them.
Q I didn't ask you that.
A. There are such individuals.
Q There are many such individuals; correct?
A. I've never done a study as to how many do that.
Q You can't make any statement about whether there's a lot of those people out there?

A. Frankly, most scientists do not call themselves an expert.

Q Well, in point of fact, there are ways of qualifying as having expertise in given fields scientifically; correct?

A. Yes.

Q A, they have an education that's appropriate; right?

A. True, or board certification or advanced training or series of publications, or whatever.

Q Right. There are lots and lots of things that scientifically can give rise to the scientific notion that somebody is an expert in a certain field; correct?

A. Yes.

Q And based upon those different things, do you consider yourself to be an expert in your field?

A. I am someone who has a certain expertise and experience and a lot of knowledge, but I would not use the term "expert" to describe myself.

Q I didn't ask you that.

A. Others are very likely to call me an expert.

Q And that's something that's not surprising

because there are, in fact, conventions, rules, expectations in the scientific community on the basis of which people refer to one another as being experts or not being experts; fair?

A. I would generally agree with that statement.

Q Now, based upon those same conventions of your particular field, do you regard Dr. Welch as being an expert in your field?

A. Dr. Welch has far more expertise and experience in this area, and if one wants to use a lay term that is commonly used, one could use the term "expert", but it is not one I would choose to use to describe others of my colleagues.

Q You wouldn't describe any of your colleagues as being experts because you described yourself as being an expert; correct?

A. That's right.

Q But I'm saying, if you followed the conventions that scientists in your area use when they refer to somebody as being an expert or not, would you agree that Dr. Welch, following those conventions, is an expert in your field?

A. If one followed those conventions, it is likely she would be called an expert.

Q Now, so we have a situation where -- and you would, again following those same conventions, you would be called an expert, too; correct?

A. I would expect that would be the case.

Q And would you agree with me, we now have a situation where we have two different scientists, both of whom would be called experts based upon scientific convention who in this particular situation with these particular issues that we have before us disagree about whether something has a reasonable scientific basis; correct?

A. So it seems.

Q Now, is there any scientific criteria on the basis of which any well-established convention of science that says that you are right and she is wrong in making these fundamental judgements?

A. Science doesn't work that way.

Q So, if we now go to another question, another series of terms that you've used, you said something is reasonable for nonscientific reasons. Do you remember saying that?

A. I don't specifically recall the context of that. If you put down that I said it, there's probably a context in which I said it. At the

moment, I don't recall that.

Q But what is the test for something that's reasonable for nonscientific reasons?

A. I'll go back to my painted car analogy. What is reasonable to different people or different car owners will vary depending on whatever sense they bring to it. Somebody will accept a paint job that somebody else might not.

Q Well, what's the test? I mean, you just stated that people have different opinions. We know we have different opinions --

A. The test is whatever people bring to that issue.

Q So, it's purely subjective?

A. In some cases it's subjective. On the other hand you could actually go measure as to what percentage of the car was properly painted and if the contract says we will paint your car to within ninety-eight percent of covering all of the surface of the car, then you can do an actual measurement.

Q Well, there you would have a legal notion, which is what's in the contract and then you would have a scientific methodology that's used to apply

longer and older literature.
Q Okay. Okay.
A. You know, that's why I was confused. There's a lot longer and older literature than that.
Q Dori was a flower child back at that point in time. No, Dori is much to young to have been a flower child, but you were a flower child; right?
A. Probably. On a given day, yes.
Q It's considered fashionable then and now, but back in -- I'll rephrase my question. Is it true that the scientific literature defined a diagnostic entity called diffuse pleural thickening at least as of the 1970's and without relationship to Libby, Montana?
A. Yes.
Q And would you agree with me by the 1970's it was a well-established diagnostic entity?
A. I have not researched or studied the specific use of that term, but certainly pleural disease caused by asbestos, by whatever name it went, had various descriptions and that would have been one characterization of the pleural disease you got from asbestos.

Q Well, for purposes of this case or at any other time, have you actually gone back and done a literature search to determine what the literature has to say about diffuse pleural thickening?
A. Not that term. I have studied the issue of what one should call pleural disease caused by asbestos, and descriptive changes one could say include both what is now called diffuse pleural thickening or circumscribed or discrete pleural thickening or pleural plaquing. But the older literature, and I have gone back and read that, did not make that specific distinction. When that distinction was first made, I don't know, but it was certainly relatively recently.
Q That distinction is well-recognized in the scientific literature today; that is, the distinction between diffuse pleural thickening and circumscribed pleural plaques; correct?
A. It is recognized as being different, but the definition of what accounts for either of those is not necessarily consistent.
Q We'll get to that definition in a minute. Would you agree with me that today diffuse pleural thickening is recognized as a distinct diagnostic

entity in the scientific literature?
A. Distinct from what?
Q Distinct from other forms of pleural disease?
A. Yes.
Q And it is diffuse pleural thickening that is the target or focal point for Level IV B; correct?
A. Yes.
Q Now, let me ask you a little bit about diffuse pleural thickening, then. Diffuse pleural thickening can involve, I think you've made mention, in fact, that the pleura actually has different parts to it anatomically?
A. I have not. We haven't discussed that, but I would if so asked. There's the visceral pleura and the parietal pleura.
Q I thought you had referred to that for sure, but --
A. No, I have not.
Q I'm probably confusing you with a less able witness that I have asked the same questions of.
A. Or many of the other thousand doctors that you have taken depositions from.
Q No, to the contrary. I have not taken a

thousand depositions of doctors. I don't think I've taken a thousand depositions. I'm not nearly as experienced in that area as you are. So, the parietal pleura is what portion of the pleura?
A. That that would line the inside of the chest wall.
Q And the visceral pleura is what part of the pleura?
A. The pleura overlying the lung parenchyma.
Q And those are distinct anatomical features of the human body; correct?
A. Yes.
Q And is it true that the literature distinguishes, scientific literature distinguishes diffuse pleural thickening of the parietal pleura from diffuse pleural thickening that also involves the visceral pleura; correct?
A. I have not studied that particular issue. I'm sure they have been discussed in separate terms. I recall reading some people talk about the parietal pleura and some about the visceral pleura, but I have not studied the use of terminology with regard to that.
Q Well, is there a difference between diffuse

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pleural thickening involving the parietal pleura only versus just diffuse pleural thickening involving both the parietal pleura and the visceral pleura?

A. There are some things that are the same and there are some things that are different. What's the same is that they are caused by the cell type laying down the same collagenous material. What's different is they are anatomically in two different places.

Q Well, but they are not only anatomically in two different places, there are different types of diffuse pleural thickening; aren't they?

A. No, it's the same collagen being laying down by fibroblast. It's the same in that sense, it's just that it's in different places. There is nothing structurally different about the thickening in the parietal or visceral pleuras.

Q Are you testifying that as an expert based upon your actual review of the scientific literature?

A. I'm testifying to the extent that I have not studied the terminology. I'm not a pathologist. I'm not an anatomist. That would be my

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understanding from what I've read.

Q I am just asking kind of pretty candidly, have you actually focused on what the literature has to say --

A. I've already said no. I'm sorry.

Q What the literature has to say about the differences, if any, between diffuse pleural thickening involving the parietal pleura only versus diffuse pleural thickening involving also the visceral pleura?

A. I have not focused on that in my review of the scientific literature.

Q Thank you. Now, are you familiar with the difference between -- are you familiar that certain kinds of diffuse pleural thickening involved overlapping pleural plaques?

A. I am not sure what you mean by overlapping pleural plaques.

Q I guess, then, that you wouldn't be familiar with diffuse pleural thickening involving overlapping pleural plaques?

A. I guess not. I don't understand the term. I've never seen the term "overlapping pleural plaques".

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Q Well, are you familiar that diffuse pleural thickening actually can involve different presentations of the tissue?

A. Yes.

Q And pleural plaques are the distinct appearance of pleural tissue; correct?

A. Yes, and they may or may not be calcified.

Q And they may or may not be calcified. But do you know whether there's a certain kind of diffuse pleural thickening that involves the appearance of overlapping pleural plaques?

A. I'm not aware. As I said, I've never seen that term.

Q Do pleural plaques involve the parietal pleura, the visceral pleura or both?

A. It can be either.

Q I'm sorry?

A. It can be either or both.

Q Well, is there any difference in frequency with which --

A. I have not studied that. I don't know.

Q I'm sorry; let me just finish so that the record is clear. Do you know, are you aware of the frequency with which pleural plaques can

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involve the parietal pleura or the visceral pleura?

A. I do not know.

Q Are you familiar with the term blunting of the costophrenic angle?

A. Yes.

Q What is blunting of the costophrenic angle?

A. It's when fibrotic changes occur in not that part of the sulcus where the diaphragm and the side wall of the chest meet.

Q Does the pleura extend down into the costophrenic angle?

A. Yes.

Q So, when we talk about blunting of the costophrenic angle, is that blunting of the pleura at the costophrenic angle?

A. It can be, or it can be a collection of fluid.

Q Are you familiar with what the literature says about the blunting of the costophrenic angle in connection with diffuse pleural thickening? Do you understand the --

A. Not really. One of the definitions of diffuse pleural thickening requires a blunting of

to respond to the plaquing process, not knowing what you meant by that.

Q Well, I could be precise. First of all, are you aware of any scientific literature that says that the fibrotic process giving rise to plaques can cause blunting of the costophrenic angle of the pleura?

A. I don't recall what's in the literature, but I've certainly seen such cases clinically.

Q So, without any evidence of benign pleural effusion, you've seen cases -- are these personal cases you've seen not reported in the literature or you just don't know?

A. Well, certainly it's cases I've seen. We've seen all kinds of things at Sinai.

Q Well, I'm talking about very specific --

A. You're being very specific, and I will tell you that if you're asking me to give answers about the specificity of this particular entity and its pathologic and anatomic roots, this is not a subject that I have particularly studied. This is the second or third time I've said this now. So, I'm giving you the answer based on my experience. But if you're asking me about the scientific

literature, I do not recall what the scientific literature says specifically about that subject.

Q And just to be clear, that subject is the cause of diffuse pleural thickening involving blunting of the costophrenic angle?

A. In the absence of a benign asbestotic pleural effusion; correct.

Q Have you looked at the literature to see, or do you know, whether the confluence of pleural plaques can affect the visceral pleura?

A. I don't understand the phrase "the confluence of pleural plaques". You asked me about overlapping plaques. Now you're asking me about confluence of plaques. Those are not terms I'm familiar with.

Q Is it true that not all diffuse pleural thickening is associated with severe impairment?

A. The simple answer is yes, and the simple answer beyond that is there is very poor correlation with radiologic appearance and pulmonary function, if you want to use the term "severe" or "disabling" in terms of someone's pulmonary function status.

Q But you would agree with me, to the general

proposition, that not all diffuse pleural thickening is associated with severe impairment?

A. And conversely, what would be considered very mild or minimal kinds of disease can be associated with severe disabling changes, none of which is reflected here in the document.

Q I didn't ask you about what was reflected in the document. We're going to get to the document, let me assure you. I'm just trying to find out about the science first.

A. Well, the science is, what you said is correct and the converse is correct.

Q Is it also true that, I'm assuming that it is by virtue of your prior answer, that the relationship between diffuse pleural thickening and impairment has been studied by scientists?

A. Mr. Finch and I reviewed the Lillis article, for example, which studied that very question.

Q And Lillis is not alone; correct? There are other people that have done research on the same subject?

A. Yes.

Q Have you done a review of the literature to study the different studies or different articles

that have been published on the relationship between diffuse pleural thickening and impairment?

A. Not specifically, no.

Q Is it true that studying that relationship is a complicated process?

A. Studying most relationships in science is a complicated process, and this one is, too.

Q And the complications that are involved in determining the relationship between diffuse pleural thickening and impairment include the fact that there are other causes of lung impairment; right?

A. There's many causes of lung impairment.

Q Including smoking, obviously?

A. Yes.

Q And that if you want to look at diffuse pleural thickening in particular, diffuse pleural thickening is not the only asbestos-related disease that can impair the functioning of the lung; correct?

A. Correct.

Q Obviously, you have parenchymal fibrosis as well?

A. Yes.

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Q Is the research also complicated by the fact that you need to have reliable radiographic readings?
A. I'm not sure I understand the question. I mean, any time you're going to do a scientific study you need to have reliable assessment of what the radiographs look like.
Q Right. And what I'm really kind of getting at, isn't it true that when it comes to diffuse pleural thickening in particular that quality of the radiographic assessments has not always been very strong; correct?
A. The quality of radiograph assessments for asbestos disease in general has not always been very strong.
Q You're right. I deserve that. Is it also true that diffuse pleural thickening is actually more rare than other forms of asbestosis?
A. Yes.
Q Now --
A. It is less common.
Q Less common.
A. Or more rare.
Q Isn't it true that there is no scientific

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literature, none, demonstrating that diffuse pleural thickening involving the parietal pleura alone is associated with severe lung impairment?
A. I have never studied that. I do not know one way or the other.
Q Did you study the McCloud paper?
A. I have.
Q Well, are you familiar with it today so you can speak to it as an expert?
A. If you have a copy of it, it will refresh my memory.
Q I'm just asking do you know what McCloud studied?
A. He was looking at -- I forget the details of it, so I would rather have a copy to look at before I comment.
Q Well, what studies do you know about the relationship between diffuse pleural thickening and severe impairment, that is to say --
A. I'm not sure studies look at -- no study that I'm aware of looked at the level -- was designed to study only one level of impairment. The Lillis paper was not designed to study just severe impairment.

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Q I understand that, but certainly --
A. I'm not aware of any paper that was designed to look at just severe impairment. That was the nature of the question.
Q Then I'll be clearer about my question. Are you aware of any studies that have included the assessment of whether diffuse pleural thickening results in severe impairment or is associated with it?
A. I'm sure I've read things that says that, yes, they can be associated. I can't give you the citations for it at the moment.
Q I just want the science. Based upon the scientific literature, under what --
A. Well, there's another problem that we have, and that is I don't know what the term "severe" means to you. We have one set of document -- or we have a document here that gives some definition, but I don't know what "severe" is as you used the term.
Q Well, you know that there could be significant reductions in lung function without it being severe; correct?
A. It's an arbitrary cutoff as to what you say

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is mild, moderate or severe. I mean, it's like people asking me is it a moderate or severe or heavy smoking history. It's all in the eyes of the beholder. Until you have a working definition --
Q I'm going to give you one. Are you familiar that PFD, pulmonary function test scores, have with them a range of normal, that is that in interpreting pulmonary function tests there are standards or guidelines for what the range of normal is?
A. Yes.
Q And I'll just ask you, are you aware of any science which demonstrates that diffuse pleural thickening can be associated with a diminution in lung function such that is below normal range?
A. Yes.
Q Tell me what science says what are the conditions under which diffuse pleural thickening can result in a diminution of lung function below the range of normal?
A. I'm not sure I understand the question.
Q Well, if there are scientists that are examining -- I'll be clearer. If there are

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scientists who are examining the relationship between diffuse pleural thickening on the one hand and impairment on the other --

A. Right.

Q I'm just asking, what does the scientific literature say about the circumstances under which diffuse pleural thickening is associated with a diminution of lung function below normal limits?

MR. HEBERLING: Objection; unclear as to what "circumstances" means.

THE WITNESS: That's exactly right. I don't know what you mean by "circumstances". Some patients with the radiologic findings will have normal pulmonary function, some will have a mild diminution of function and some will have a significant diminution of function.

BY MR. BERNICK:

Q And tell me what the literature says about the circumstances under which -- the conditions under which diffuse pleural thickening is found to be associated with an impairment such that lung function drops below normal limits. What are properties of --

A. I don't know that there are some that are

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cited in the literature, and if they are, I'm not familiar with them.

Q Let me just be clear. Is it completely arbitrary and unpredictable whether diffuse pleural thickening will, in fact, be associated with a significant drop in lung function, or have you just not looked at this in the literature?

A. I have not looked at it in the literature. I've looked at other issues of a similar nature. It is not exactly arbitrary in terms of what, let's say, the degree of parenchymal change.

There is some evidence that the higher the radiographic score, the more severe pulmonary function abnormalities will be in groups. But for any individual, you can have a mildly abnormal x-ray with severe pulmonary function abnormality and for others you can have a significantly high score in terms of parenchymal change with perfectly normal pulmonary function. So, in that sense it is very arbitrary. It is not predictable for any individual. For groups, as a group, the higher the radiographic score the more likely one will have a significant diminution of pulmonary function.

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Q So, with that statement, which I appreciate, when we're talking about interstitial fibrosis or would be picked up by asbestosis, what is it Roman IV A, when we're talking about that, science says that as groups people who have the higher levels of fibrosis on radiographic reading tend to have more diminished lung function; is that fair?

A. Yes.

Q In the same fashion, can you tell me what science has to say about when diffuse pleural thickening is associated with lost of lung function?

A. I cannot. I have not studied that.

Q Do you ever get blunting of the costophrenic angle in the pleura where the fibrosis is only parietal?

A. I don't know.

Q Now, we started out -- if we were to go through the criteria in this TDP Roman IV B, we see that there are requirements regarding the extent and thickness of the pleura; right?

A. Yes.

Q There are criteria involving blunting of the costophrenic angle; correct?

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A. Well, it is assumed under Dr. Welch's definition. She has adopted, I believe, the ATS document and the interpretation that says that blunting is required.

MR. HEBERLING: David, if you are going in to a new area --

MR. BERNICK: No, I just want to close this out.

MR. HEBERLING: You know, it's 12:30. It might be time for lunch.

MR. BERNICK: I'm going to close this out and that's fine. I will be a few minutes.

MR. HEBERLING: So, you'll be done with the deposition?

MR. BERNICK: No, we'll just take a lunch break. I would like to be able to tell you yes, but I can't tell you that. I know I'm going on and on, but I want to get out of here, too, so.

BY MR. BERNICK:

Q So, if we go to the TDP for Roman IV B, we can see, I think just to get us back on the same page, there are criteria for the extent and

not aware of anybody else who has done an analysis of disease patterns of Libby to see if it comes to nonmalignant respiratory disease and diffuse pleural thickening specifically whether there is a different pattern of manifestation of those conditions on Libby versus elsewhere?

A. I've not seen it published. I can tell you from my various trips to Libby and in talking with the doctors at the CARD Clinic that there do seem to be factors in Libby that do not sound like what I've seen in any other group or read about in any other group. There's a higher percentage of people with chest pain, which is a rare manifestation of asbestos-related disease in other populations.

There appears to be a pattern in some individuals of acute obstructive changes, which tend not to be seen elsewhere. There is a severity of disease leading to death with rather minimal changes on x-ray, some of which are even only found occasionally on CT scan that is not like the pattern of disease I see elsewhere, but none of that has been written or put into the scientific literature.

Q And have you done the analysis about whether the TDP category Roman IV B would have any kind of disproportionate effect on people with diffuse pleural disease at Libby?

A. I have not done that kind of analysis.

Q Are you aware of anybody who has?

A. No.

Q Let me ask you about the mortality data that you've worked on, and then I'll be done. As I understand it, there's a group of people who were residents of Libby who died and whose disease has been recorded at the CARD Clinic and in turn reviewed by Dr. Whitehouse and others, including yourself?

A. Yes.

Q And that the review of the mortality experience at the CARD Clinic, can we just call that the CARD mortality study or CARD mortality data?

A. Yes.

Q Which would you prefer?

A. The latter.

Q Okay. And as I further understand it, the CARD mortality data, the analysis of that data,

has now been updated as of May of this year?

A. Yes.

Q And that updated data is not reflected in various sur-sur-supplemental-supplemental-supplemental reports; right?

A. I'm not sure I know what a sur-sur-supplemental-supplemental-supplemental report is, but I think you're being a little facetious, but it has been reflected in other documents.

Q Right. I was being a little facetious?

A. Well, I just want the record to be clear about that so I'm not answering something that made no real sense.

Q Later on it will come back to haunt you as a serious statement.

A. You can imagine in the number of depositions that I've given lines are pulled out in kinds of places.

Q Right. So, as I understand it, you in particular have gone ahead and reviewed the medical records of seventy-six nonmalignant deaths; is that correct?

A. No, I have not reviewed the medical records. I have reviewed radiographic data, but I've not reviewed the medical records in all those cases.

MR. HEBERLING: Off the record.

- - -

(Whereupon a discussion was held off the stenographic record.)

- - -

BY MR. BERNICK:

Q To get back on the same page, there were seventy-six nonmalignant deaths where you read the documentation of the radiographic readings?

A. I read the x-rays or the CT scans and made measurements, not just reading the documentation.

Q Now, how did seventy-six get picked out?

A. Those were the deaths at the clinic from individuals I believe you said the criteria were nonoccupational exposure.

Q No, I didn't say that.

A. These were the deaths at the clinic with -- I'm not exactly sure, as I sit here right now, to remember how those seventy-six got selected.

Q And maybe this will shorten the examination even more and we'll wait for Dr. Whitehouse to

applied whether asbestos exposure was a substantial contributing factor?
A. I believe it was the latter rather than the former. For example, you could have a lung cancer which could have two causes, but a substantial contributing cause would be the exposure to asbestos. If you had a mesothelioma, then it's a lot easier than it's the asbestos.
Q So, in the case of lung cancer, even where the person was a smoker, if they had a history of exposure to asbestos, asbestos could still be found to be a substantial contributing factor; fair?
A. Yes.
Q Whose decision was it to use "substantial contributing factor" as opposed to "the cause"?
MR. HEBERLING: Objection; assumes that "substantial contributing factor" was used.
BY MR. BERNICK:
Q This is an effort to tell you something. But I'm just asking for what you know. Whose decision was it?
A. I am not sure the decision was used to use the term "substantial contributing cause", which

is we have now both agreed is a legal term. It was Dr. Whitehouse who made the ultimate decision of was this a death that was an asbestos-related death or not.
Q When it came to the seventy-six nonmalignant deaths that you read --
A. Yes.
Q -- was it your understanding that these were deaths where asbestos-related illness was a substantial contributing factor or a significant contributing factor or is it your understanding that these were cases where asbestos-related illness was the cause of death?
A. When I read the x-rays I knew that these were all patients that had had asbestos-related disease. I did not know what the ultimate judgement was about those particular individuals as to what was thought to be their cause of death. That was not a part of the analysis that I made. So, I don't know ultimately, and you'll ask Dr. Whitehouse, I'm sure, what criteria he used.
Q Ultimately, how many of the people who were included in the seventy-six nonmalignant deaths, how many of those people had diffuse pleural

thickening?
A. It's all there on the table. I don't have the number in my head out of that what number did. More had pleural plaques and diffuse pleural thickening, is my recollection, but I can't give you the numbers. I would have to see the tables and look them again.
Q Do you know out of the seventy-six people how many people in the CARD study had both diffuse pleural thickening, with or without costophrenic blunting, and had restrictive lung function below the range of normal?
A. I didn't look at the pulmonary function data for those individuals. I was simply reading those x-rays and doing my own independent analysis of what was on the x-rays or CT scans. I do know just antidotally without an analysis that there would have been many individuals who were judged to have died of an asbestos-related disease --
Q The cause, or substantial --
A. The cause, who would not fit the criteria as they are outlined in document eleven.
Q Which is, are you talking about, category one --

A. Any category. They wouldn't fit any category.
Q They wouldn't fit any category?
A. Correct. Well, I guess they would fit probably the second to last one, whatever the -- there were people --
Q Well, let's be clear.
A. Okay. There were people who would not have fit the category of severe asbestosis, though they died of asbestos disease because they wouldn't have either met the criteria as listed here, nor would they have fit category IV B, severe disabling pleural disease, because they wouldn't fit those criteria either. But they were dead from their asbestos disease.
Q Well, let's just be clear, have you done your own analysis of the cause of death for anybody at the CARD Clinic?
A. No.
Q So, when you say there are people who died of asbestos-related disease, you're relying upon there being a death certificate that says that or the best evidence analysis done by somebody else?
A. Dr. Whitehouse.

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Q Dr. Whitehouse. In how many cases -- did you actually look at the death certificates?
A. No.
Q So, you don't know how many of the people who comprised the mortality study had a death certificate that said they died of asbestos disease or Whitehouse analysis based on best evidence? You don't know how the population breaks out?
A. More than half the people died of an asbestos-related disease.
Q In the CARD Clinic study?
A. Of this seventy-six.
Q I understand that, but you don't know in how many cases that statement was based upon a death certificate as opposed to Dr. Whitehouse's best evidence analysis?
A. Well, every case that had a death certificate was also given his best evidence analysis, so there's both and they could be congruent or they could be different.
Q But I'm saying, you don't know --
A. I don't know how that breaks down.
Q In how many cases -- well, did

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Dr. Whitehouse fill out any of the death certificates himself?
A. I believe he did, but I can't say that for sure. Some of them were patients he knew. Over the years I don't know if he himself filled out the death certificates or not.
Q In how many cases --
A. He knew all of these individuals.
Q He knew all of these individuals, and where he didn't fill out the death certificate, the death certificate could have been filled out by somebody who talked with him about how it should be filled out; correct?
A. Anything could be possible. They could have talked to him. They could have talked to somebody else. They could have just filled it out themselves, it depends where they died. It could have been the house staff on duty who filled it out. Who knows.
Q With respect to the seventy-six nonmalignant deaths that you analyzed, in how many cases was a cause of death determined by somebody other than Dr. Whitehouse or people who practiced with Dr. Whitehouse?

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A. I don't know. I didn't do any of that analysis. I told you the only thing I did was read the radiology and make my independent judgement of what was there on the radiographs.
Q I just want to ask you very plainly, on reading the radiology, you filled out a bunch of forms; right?
A. I did.
Q Who put together the forms?
A. Dr. Whitehouse. It was a form that he had used to do the first reading, and then he brought blank forms and the materials and we sat there and I read the x-rays independently.
Q So, Dr. Whitehouse had already read all the x-rays that comprised the seventy-six people?
A. He had.
Q And he had filled out his own form and basically you were there to be a second read?
A. Yes.
Q Now, that was not a blind read; right? You didn't have any controls that you were looking at?
A. No.
Q You just knew that everybody who comprised --

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A. Actually, no, I think I asked him -- now that I think about it. I can't recall. We discussed it and I just can't recall if we did this. He had, you know, a computer full of these reads and I said I would like to also put some in there that aren't part of this group, because that way I'm reading them blind and I don't know who is who.
Q Do you know if he did that or not?
A. Honestly, I don't recall.
Q Do you know, when you did the reading --
A. We may not have, but we certainly discussed it.
Q But did you fill out a sheet for every one that you read?
A. Yes.
Q And then a total of how many did you read?
A. I don't recall.
MR. BERNICK: The sheets that he filled out, were they attached to something?
MR. STANSBURY: An expert report, yes.
BY MR. BERNICK:
Q Did you attach to your expert report all of

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mortality for the 1,800 people as a group if you're following your own test?

A. I think within certain limits I have a reasonable ability to say that this group will have a higher mortality of asbestos disease than --

Q I didn't ask you that question.

A. Well, that's how I took the question.

Q Do you want to go back over what you said? You said that where you didn't actually have a study, but instead you had to make reference to other science, you said under those circumstances you would say that it's not scientifically supported, but it's not unreasonable.

A. Well, here we have a study. It is a limited study. It is seventy-six deaths --

Q That's the answer you gave me before. You had to have a study of the issue. Before --

A. That is a study.

Q Of the issue; the 1,800. You have no study whatsoever of the 1,800.

A. You're the one doing the apples and oranges. You're saying you have to have the answer before you can make a statement about what will happen.

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If I have to have a study of the 1,800, all 1,800 --

Q No.

A. -- then this --

Q You just have to have a --

MR. HEBERLING: Objection. Let him finish.

BY MR. BERNICK:

Q You have to have a study of people --

MR. HEBERLING: Let him finish.

BY MR. BERNICK:

Q You have to have a study --

MR. HEBERLING: Let him finish.

BY MR. BERNICK:

Q You have to have a study of people --

MR. HEBERLING: Let him finish.

BY MR. BERNICK:

Q -- who aren't actually dead.

MR. BERNICK: Objection.

BY MR. BERNICK:

Q All you have with respect --

MR. HEBERLING: Objection, Mr. Bernick. You're not letting him finish.

MR. BERNICK: He finished answering

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the question.

MR. HEBERLING: No, I don't quite think so.

MR. BERNICK: You can pick it up if there is something that I --

MR. HEBERLING: We're losing the question now because of this verbiage.

MR. BERNICK: Well, the verbiage is necessary because I'm not getting an answer to the question.

THE WITNESS: You're getting an answer, you just don't like the answer.

BY MR. BERNICK:

Q Let me assure you --

A. And if you're not clear, then let's pursue it until you're clear.

Q I am completely and utterly satisfied with every answer that you give that's responsive to my question. It's not a question of preference, its a question of responsiveness. And I just want to know, with respect to the 1,800 all you have is Dr. Whitehouse saying they've been diagnosed with asbestos-related illness. With respect to the CARD mortality study you have far more data and

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it's focused on a group of people who not only have been so diagnosed, they've died. That's a different perimeter. They are differently defined groups; correct?

A. One is a subset of the other group.

Q That could be. Well, there's a lot of things. They're all a subset of Libby just because --

A. Okay.

Q Well, you don't know that either one of them are representative of what happens with respect to the Libby population as a whole because you haven't tested that; correct?

A. And I'm not making any statements about the Libby population as a whole.

Q That's my whole point. You have nothing on the basis of which scientifically to extrapolate or extend --

A. To the whole Libby population; absolutely not. You're absolutely correct.

Q And, likewise, you have nothing on the basis of which to extend the mortality experience of people who already have died to what will be the mortality experience of people who actually have

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only been diagnosed as having disease. The one statement is a statement about causes of death with respect to people who have died. The other statement is a statement about what people will die of who have simply been diagnosed with the disease. They are two different measures of two different groups scientifically; correct?

A. No. One is a subset of the other group. I assume that the seventy-six patients who died were a subset of the 1,800 patients with disease.

Q Fair enough. That is your assumption; correct?

A. Right. And, again, that's why I said, if the pattern holds.

Q Have you done anything to test that assumption?

A. I have not.

Q Do you know of anyone else who has done anything to test that assumption?

A. To date, no.

Q Now, I want to ask you whether you agree or disagree with Dr. Whitehouse himself on this subject. Have you looked to find out what Dr. Whitehouse himself has said about whether he

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has the science to be able to predict the future of what will happen with respect to the people who have been diagnosed?

A. I do not know how he has responded to --

MR. HEBERLING: Objection; misstatement of the record.

BY MR. BERNICK:

Q Are you familiar with the fact that his testimony on this subject was stricken?

MR. HEBERLING: Objection; outside this case, misrepresentation of the record. In the criminal case you were talking about whether he could predict the progression of disease in the town of Libby. It's an entirely different subject.

MR. BERNICK: I don't know what in the world you're talking about.

MR. HEBERLING: I've got the transcript.

MR. BERNICK: I'm looking at it myself.

BY MR. BERNICK:

Q Dr. Whitehouse says that he couldn't make predictions of the future based upon science at

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Libby. Do you disagree with that?

MR. HEBERLING: Objection; inadequate reading of the context of the statement.

THE WITNESS: You'll have to ask Dr. Whitehouse what he means. And I didn't say I knew what was going to happen. You know, you're --

BY MR. BERNICK:

Q You said it was "possible"; you're right.

A. It's possible and if it follows the same pattern, this is what you can expect. It may turn out -- we won't know until either a study is done or until these 1,800 people are dead.

Q Right. And what kind of study would need to be done to be able to make a scientific prediction? What kind of study?

A. Some pieces of it would already exist. For example --

Q Please tell me what kind of study would need to be done?

MR. HEBERLING: Objection. Let him finish.

BY MR. BERNICK:

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Q What kind of scientific study --

MR. HEBERLING: He began an answer and you interrupted him. Let him finish.

MR. BERNICK: You know, all you're doing is interfering.

THE WITNESS: A study of the literature that looks at similar issues. Dr. Elms in Northern Ireland took shipyard workers and showed that those with pleural plaques were more likely to develop a malignancy than those without pleural plaques. So, one could look at what percentage of people with pleural plaques and see if it might be applicable to this population.

BY MR. BERNICK:

Q What if they're not exposed to the same material?

A. They were exposed to asbestos.

Q No. I'm talking about Libby amphibole. Dr. Lehman said, in the case of Libby, you have to look at the data relating to Libby because of the nature of the material and the nature of the exposures. Would you agree or disagree with that statement?